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ELMO
ZOOM
C-300

ELMO
ZOOM
C-300

ELMO ZOOM C-300 Specifications

The three types of magazines described below are interchangeable in the ELMO ZOOM C-300

A) **Camera Body**

1. Lens : 4× Zoom lens F1.8 f9 - 36mm
2. Zooming : Electric autozooming (approx. 5 sec.). Manual zooming possible
3. Film transport : 6V (UM-3 cells, four each) electrically driven system; 18 fps, 24 fps, and 1 fps shooting
   Rewinding and reverse shooting possible (double-8 and single-8)
   Remote control possible with "remote controller"
4. Automatic aperture : Fully automatic aperture control with CdS and "Through-the-Lens" System
   Manual aperture control possible (3.9V mercury cell)
5. Finder : Single lens reflex system
   Split image focusing adjustment (1.2m to ∞)
   Indication of f/stops in finder
   Adjustable eyepiece
6. Other : Self-contained #85 filter (used only for Kodachrome II type A)
   Voltage checker attached

B) **Magazines**

1. Double-8 magazine
   a) Double-8 film spool loading
   b) ASA number : 10 to 400
   c) Film counter : Total of 50', automatic returning system
      Automatic stop at 25 and 50 feet
      (Unnecessary to reload film at 25 feet)
2. Single-8 magazine
   a) Single-8 system cartridge loading
   b) ASA number : 16 to 400 (automatic adjustment to film speed)
   c) Film counter : Total of 50', automatic returning system
3. Super-8 magazine
   a) Super-8 system cartridge loading
   b) ASA number : 16 to 100 (automatic adjustment to film speed)
   c) Film counter : Total of 50', automatic returning system
   d) Self-contained #85 filter system

Camera body of C-300

These magazines are interlocked with the camera body by precision mechanism. As an example of versatility, a Single-8 magazine may be used to replace a Super 8 magazine containing film which is partially exposed, or color and black/white film magazines may be interchanged before the film is entirely exposed. In this case, black and white film is loaded into a Double-8 magazine. Thus, use of various types of film is both quick and easy. The magazines are classified as accessories, allowing selection according to individual preference

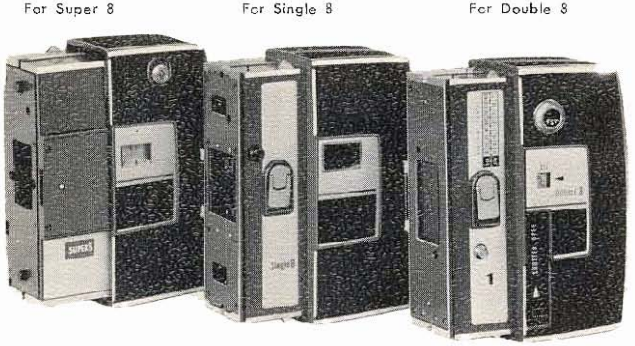
THREE TYPES OF 8mm MOVIE FILM

The ELMO ZOOM C-300 is an all-purpose, top class 8mm movie camera which uses all three types of 8mm movie film. It consists of the camera body and film magazine. The most important feature of the camera is its newly designed, crystal clear zoom lens (F/1.8, 9 to 36mm). This is followed by the high-performance "Through-the-lens" arrangement (automatic light adjustment mechanism), the single lens reflex construction, the split-image focus mechanism, the film drive system, and the reverse shooting mechanism.

* There are three different types of film magazines which can be used with the ELMO C-300.

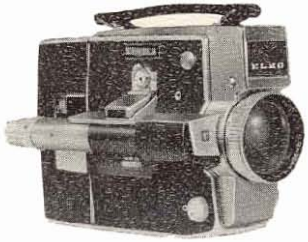
  1. Double-8 magazine 2. Single-8 magazine 3. Super-8 magazine

  The three types of 8mm movie film are Double-8, Single-8, and Super-8. Refer to the description of these magazines.

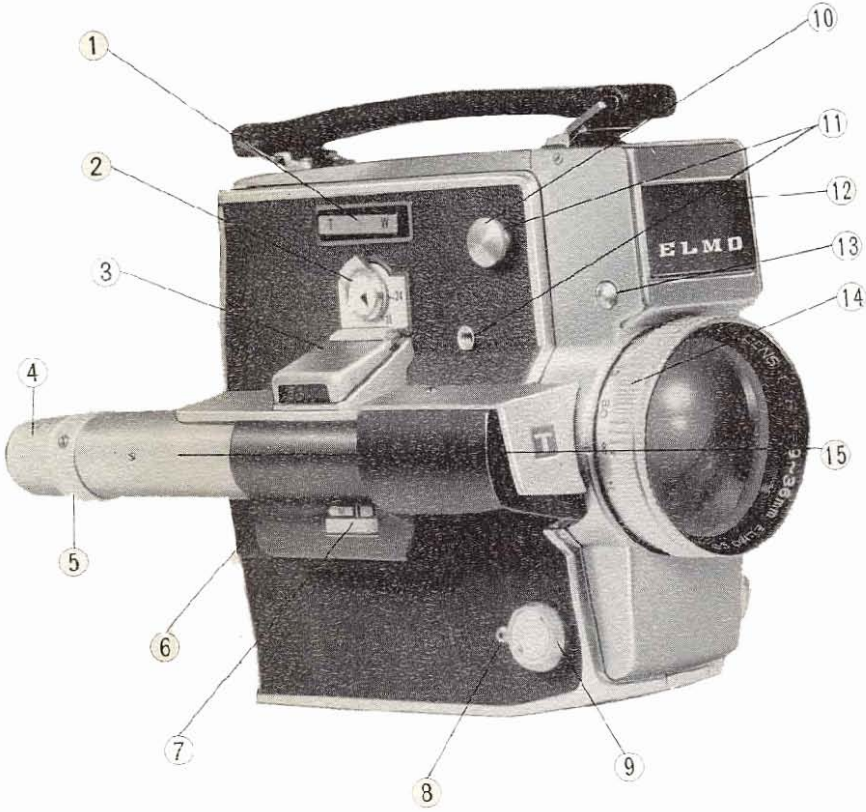


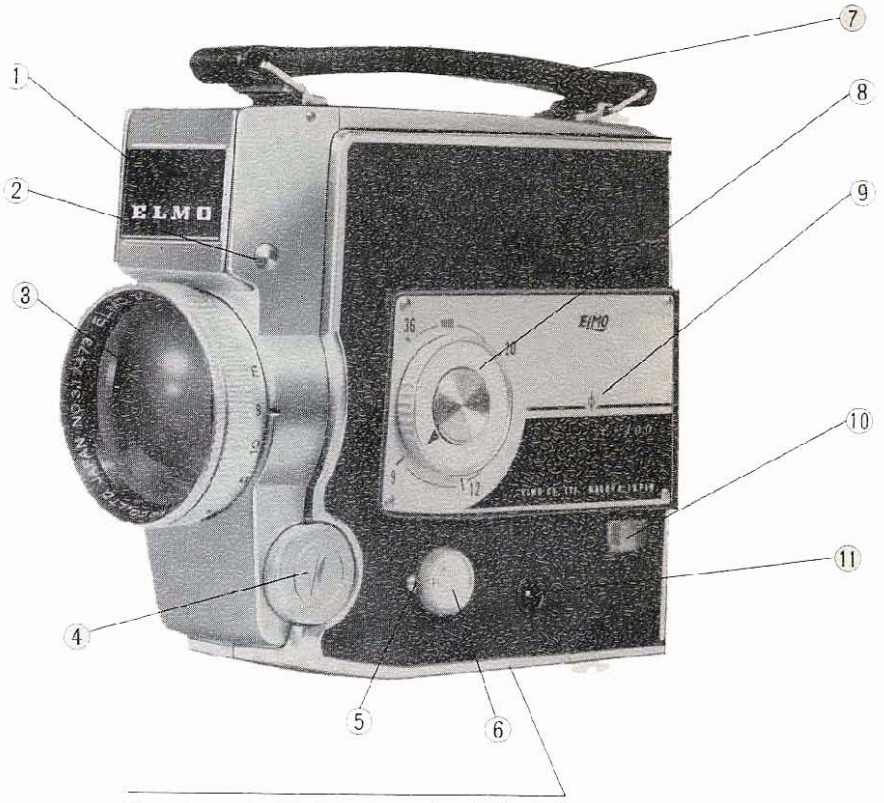
Interchangeable magazines for C-300

NOMENCLATURE of ELMO ZOOM C-300



1. Autozoom TW button
2. Camera speed dial
3. Shutter button cover
4. Eyesight adjustment ring
5. Eyesight adjustment lock ring
6. Battery test meter
7. Battery test button
8. AM dial stopper
9. AM dial
10. Built-in filter screw
11. Accessory shoe
12. Battery compartment (behind the name plate)
13. Battery compartment button
14. Focusing ring
15. SLR finder barrel





There is a tripod hole in the center of the bottom.

1. Battery compartment (behind the name plate)
2. Battery compartment button
3. Zoom lens F/1.8 f9-36mm
4. Mercury battery compartment cap
5. FR dial stopper
6. FR dial
7. Carrying strap
8. Manual zoom dial
9. Film plane index
10. Film indicating window
11. Remote connector receptacle

Film transport and battery power check cannot be made unless there is a magazine in the camera. Place one of the magazines in the camera.

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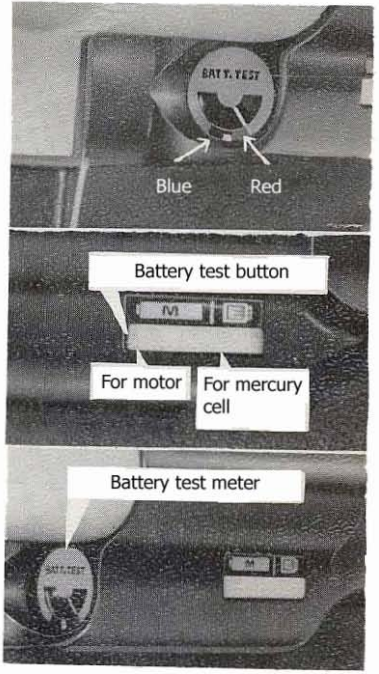
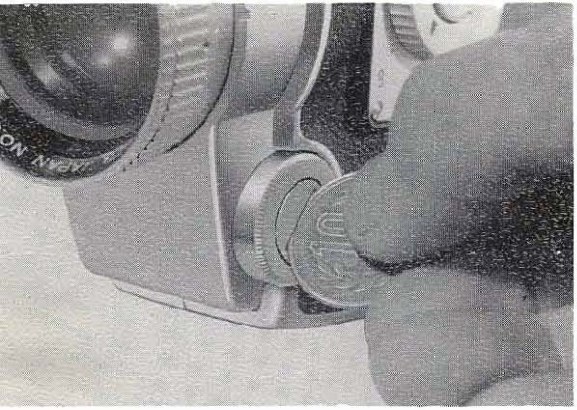
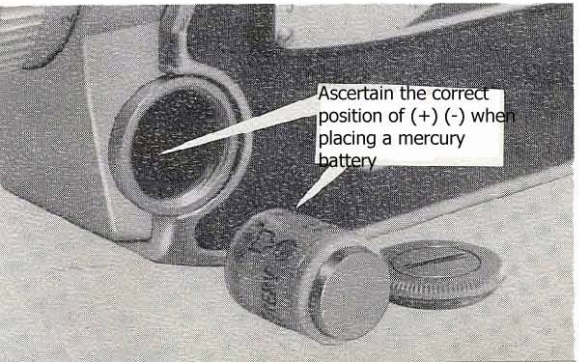
ELECTRICALLY DRIVEN ELMO ZOOM C-300

The C-300 is electrically driven by four UM-3 dry cells housed in a special dry cell case. The cover carrying the name plate above the lens springs open by squeezing together the round buttons at the sides of the name plate. When inserting the cells be sure to observe the polarity instructions on the cell housing. This power source drives a precision miniature motor for filming the autozooming. There is a self-contained tester which indicates the state of the batteries and the mercury cell.

Push the rear of the test button (M) to check the motor batteries (6V), and the front (E) to check the mercury cell (3.9V). In both cases, observe the meter (see illustration) while depressing the button. If the deflection is in the blue range for the motor batteries and in the blue or white range for the mercury cell, it indicates that sufficient battery or mercury cell power ramains. When deflection approaches the red range, it's time to install new cells. However, remember that a power check cannot be made unless there is a magazine in the camera.





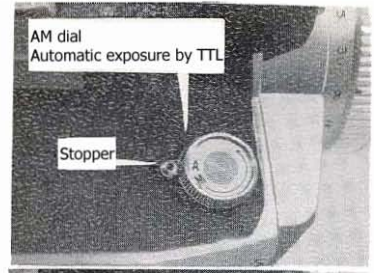


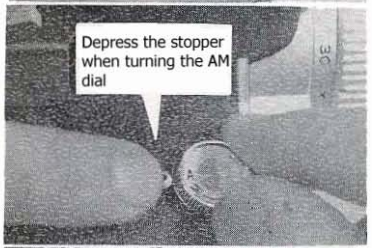
"TTL" AND MANUAL ADJUSTMENT

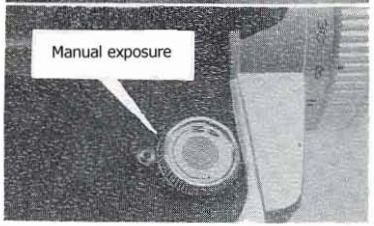
The mechanism for automatically stopping down light passing through the lens onto the film surface is known as "TTL" (Through-the-Lens). "TTL" is a top quality device developed by improving conventional electric "eyes" which use a separate light window. The light source for the electric "eye" (EE) used in the C-300 is obtained directly "through-the-lens", so a separate light window is unnecessary. "TTL" uses a CdS cell which controls a mercury cell used for stopping down light values. The mercury cell (3.9V), under normal usage, is effective for one or two years. The C-300 has new construction which prevents unnecessary mercury cell consumption. This feature is the shutter button cover. When shooting, this cover must be opened since mercury cell current will not flow with the cover in place. Always keep the cover in position when storing or carrying the camera.

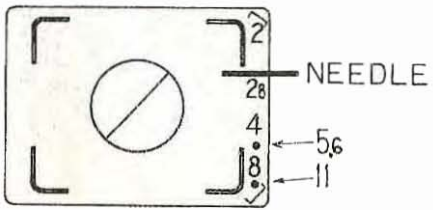
The mercury cell can be replaced easily by removing the mercury cell compartment cap (turn to the left). Refer to the illustration. If the operator desires to adjust the lens opening manually, the "TTL" mechanism may be made inoperative.

The AM dial is on the lower right front of the camera body. (Refer to the illustration.) When "TTL" is to be used in shooting, this dial must be set to position "A" (automatic). For manual operation, depress the dial stopper and turn to the right, setting to position "M". While looking through the view finder, turn the dial so that the pointer, on the right side of the view frame, indicates a suitable stop value. At this time the stop value is fixed and light intensity has no effect on the setting. When manual operation is completed, return the dial to position "A".







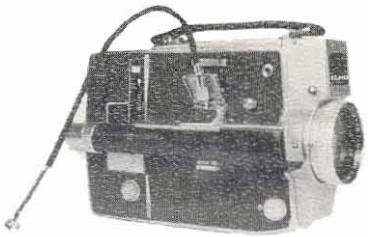


SHUTTER BUTTON

The shutter button is above the finder barrel center.

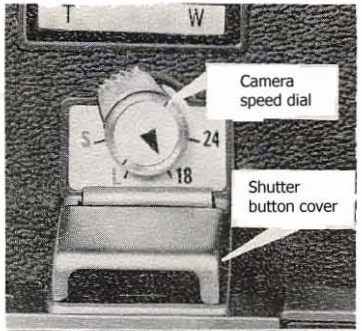
The cover provides protection. Move upward to open before shooting.

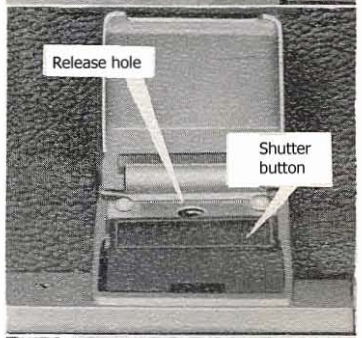
When the black shutter key, beneath the cover, is depressed the motor rotates for filming. The button has a hole for ordinary cable release.

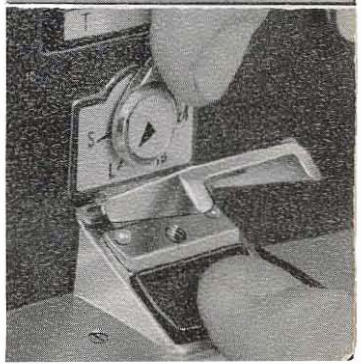


If the dial arrow is set to position "L" after the shutter button has been depressed, the button is locked and continuous filming takes place at the rate of 18 frames per second. Refer to the illustration.

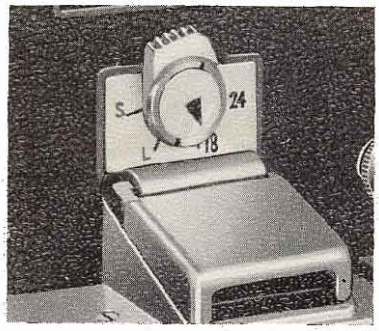
When storing or carrying, the arrow should normally be set to position "L".







FILM TRANSPORT SPEED



Film transport speeds for the C-300 are the same for all types of film, and are shown in the following.

18 frames per second (standard)
24 frames per second (talkie speed)
1 frame per second (for animation or similar purposes)
Reverse filming can be done at 18 fps and 24 fps.
(applicable only for double-8 and single-8 films)

Change of film transport speed compensates automatically the stop value through its coupling work with TTL.

Standard speed is adequate for enjoyment of "silent" movies, or "talkie" movies where a tape recorder is used.

In order to reduce "the image unsteadiness" in movies made from a fast moving vehicle, or to allow application of a magnetic coating after developing for producing "talkie" movies, the 24 fps speed is used for shooting. Voice quality is improved at this speed.

Film transport speed change is made with the speed dial. Set the dial arrow to the desired position.

S=1 fps (approx. 1/20 second)
L=Safety lock
18=18 fps (approx. 1/40 second)
24=24 fps (approx. 1/60 second)

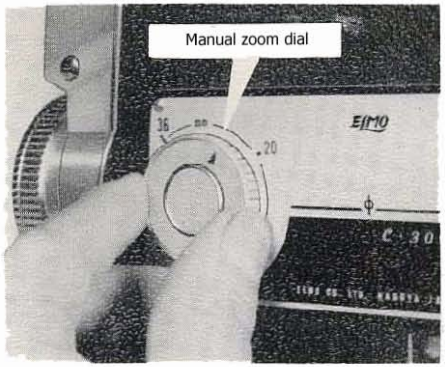
When at position "S" and the shutter button is operated, only one frame is released. If the shutter button is released and again operated, another frame will be released. By continuing this process, animated effects may be produced. During sirgle frame shooting, light intensity is approximately doubled under normal conditions. For this reason, first use "TTL" and determine the proper lens setting by reading the value displayed in the view finder. Then set to the manual position and close the lens to a value which is one stop less. (For instance, if the indicated value is "5.6", set to "8".)

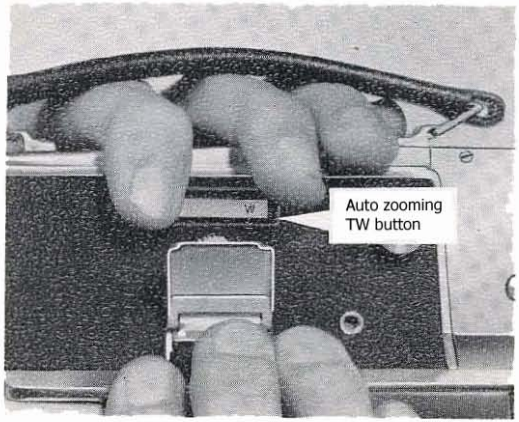
The C-300 may be remote controlled. The remote control jitting is on the left side of the camera body, below and behind the manual zoom dial.

ZOOMING

The C-300 has lever-type buttons designated as T and W. Whue filming, the camera is braced with the right hand, and the index finger is used to operate the shutter button. The left hand is passed through the leather strap, the index finger is positioned over "T", and the middle finger is over "W".

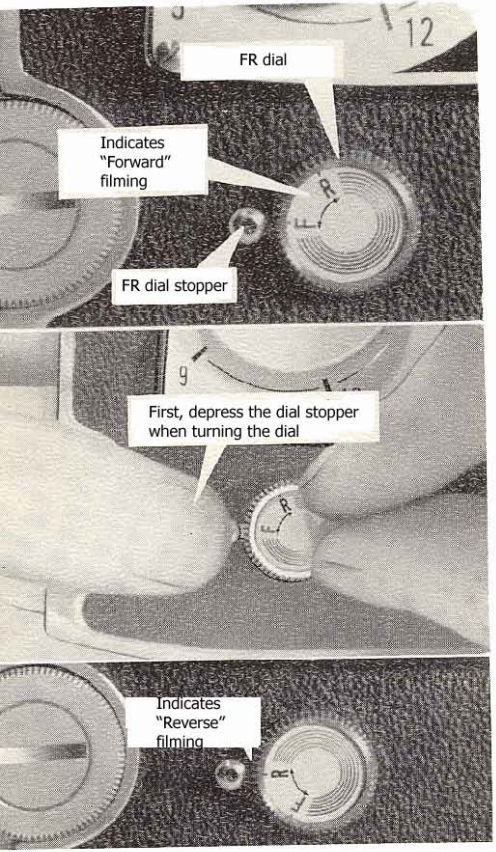
If "T" is operated, the focal distance shifts from 9mm toward 36mm, causing the width of field to become narrower. This provides the desirable telephoto effect. On the other hand, operation of "W" reverses the above, causing the field width to increase.





The above procedure is known as autozooming. However, manual zooming at other speeds is possible by turning the zooming dial with the fingers of the left hand. Marks which correspond to focal distances appear on the zooming dial. For either automatic or manual positions, zooming can be accomplished, not only to the extreme limits of 9mm and 36mm, but stopped or started from any intermediate position. Viewing enjoyment is greatly enhanced by the correct amount of zooming. Scenes can be made more forceful with zooming, but random zooming causes viewing difficulty.

Autozooming drive power, described earlier, uses the film transport batteries.


FR dial
Indicates "Forward" filming
FR dial stopper
First, depress the dial stopper when turning the dial
Indicates "Reverse" filming

REVERSE SHOOTING AND REWINDING

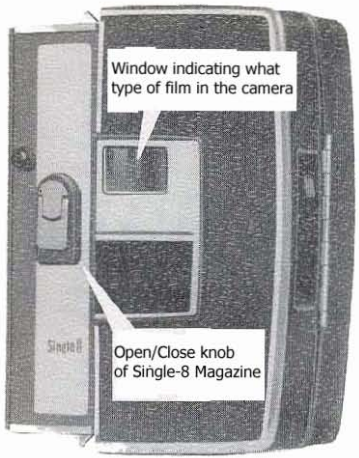
The C-300 features reverse filming and film rewinding. The F.R. button is on the left side of the camera body. Ordinarily, the indicator button is set at position "F" (forward). At this time ordinary shooting may be done. For reverse filming or rewinding, turn the dial after the dial stopper has been depressed, setting the dial at position "R" (reverse). If the shutter button is depressed at this time, the film will be driven in reverse.

★However, reverse drive is not possible with Super-8 film due to cartridge construction. Even if the camera is loaded with a Super-8 magazine, the motor will not rotate when the shutter button is depressed while the F.R. button is set in position "R". This is a safety feature. In view of this, reverse filming and overlapping are not possible with Super-8 film.

Before reverse filming, it is necessary to run the film ahead a certain length. Before doing so, insure that the lens cap is in position, and advance the film while observing the film counter. Remove the lens cap and expose the film by reverse drive.

Next, replace the lens cap and advance the film to its original position. If this step is neglected, subsequent forward shooting will be superimposed on the carefully planned reverse shooting, and double exposure will spoil the film. Rewinding is usually used for overlapping, or for trick photography.

When doing the reverse filming, the last one frame will be exposed white since the shutter stops open.



SINGLE-8 MAGAZINE

Single-8 film is loaded in a special cartridge and packaged for sale. Insert the cartridge without attempting to open, into the C-300 Single-8 magazine.

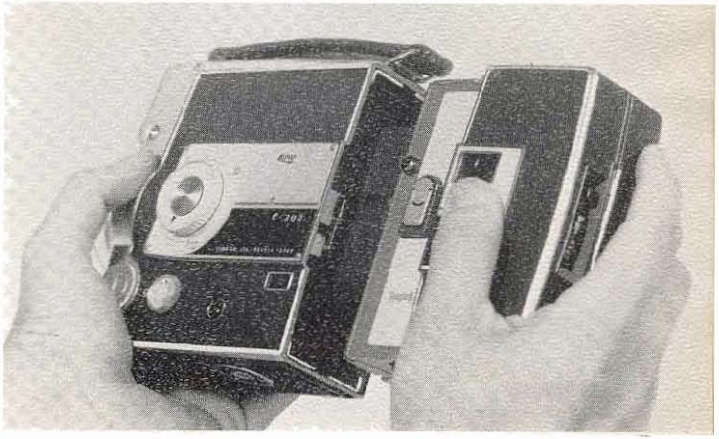
A portion of the film protrudes from the front center of the cartridge. Refer to the photograph. There is a downward pointing arrow on this film protrusion. However, do not touch the film, for although this portion has already been exposed to light, that immediately following inside the cartridge is unexposed.

Cutaway →

↑ Exposed Single 8 cartridge

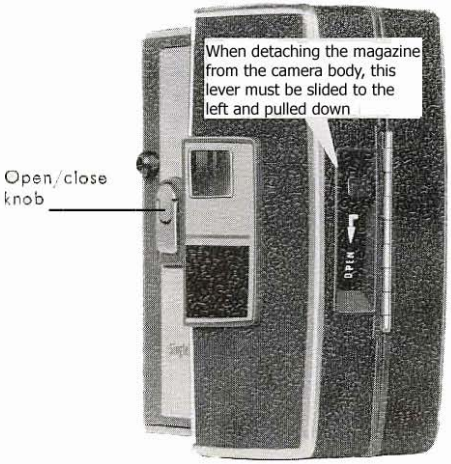
↑ Single 8 Cartridge before exposure

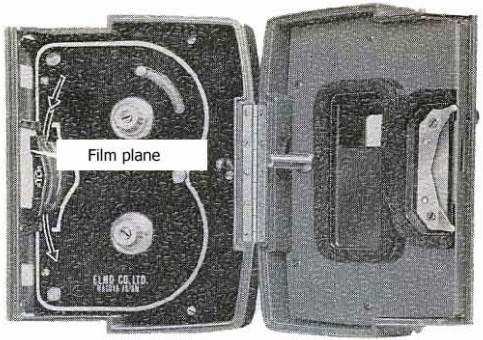
★ The entire film is driven from top to bottom inside the camera.

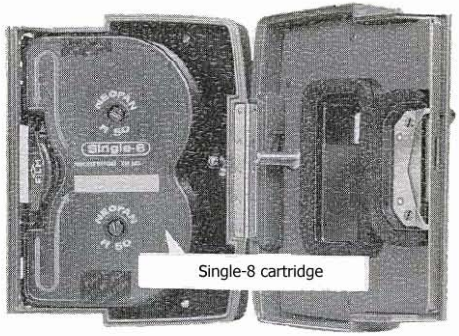


The way of inserting the Single-8 magazine into the camera body

Load the cartridge into the Single-8 magazine after first removing from the camera. Observe the arrow OPEN on the side of the magazine, and push the lever down while pulling the magazine. It should come out easily. Raise the lock and turn to the left to open the magazine cover, and carefully thread the film protrusion through the film gate, making sure that it is correctly positioned. The position is correct if the arrow on the film is visible through the window on the front of the magazine. Close the magazine cover and turn the lock back to its original position to complete loading.


When detaching the magazine from the camera body, this lever must be slided to the left and pulled down
Open/close knob
OPEN

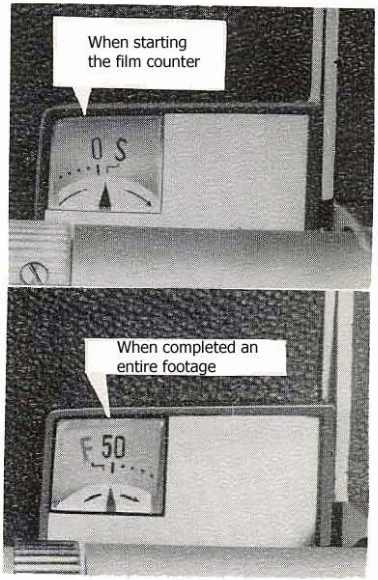


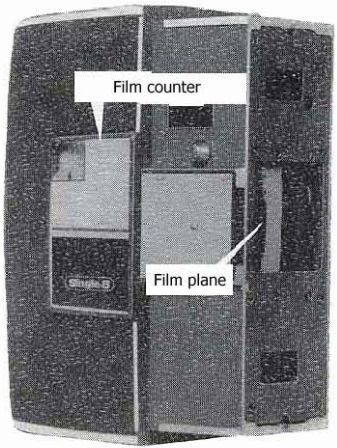


The ASA sensitivity adjustment is made automatically when the Single-8 magazine loaded with Single-8 film cartridge is inserted into the camera body.

"Single 8" which is marked on the bottom of the Single-8 magazine will appear in the camera film window when the magazine has been inserted in the camera. In order to determine what type of film is in the camera, check the window located at the center of the left side. The window can be used to confirm that the film is being driven, as the shaft is visible. After filming, the motor will continue to run but the film will stop. The window may also be used to confirm that the film has stopped.

The film counter is located on the right side of this magazine. Progression is "S" to "O" to "50" to "F", and the dial advances to the right. When approaching the "F" position, the motor sound will change, indicating the filming is completed. If the shutter button is not released at this time, the motor will continue to run, but the film will automatically stop at the "F" position. Remove the Single-8 magazine from the camera and open its cover. Remove the Single-8 cartridge. The portion of film which can be seen at the front has part of the perforations cut away. This cutaway causes the film to stop even though the motor continues to run. Also, the fact that this portion is visible indicates that the film has been exposed. Forward the cartridge to the processing laboratory according to the instructions which come with the film. Developed film is returned on a projector reel, and can be projected without further processing. However, the ELMO FP-A Projector or a similar projector must be used.

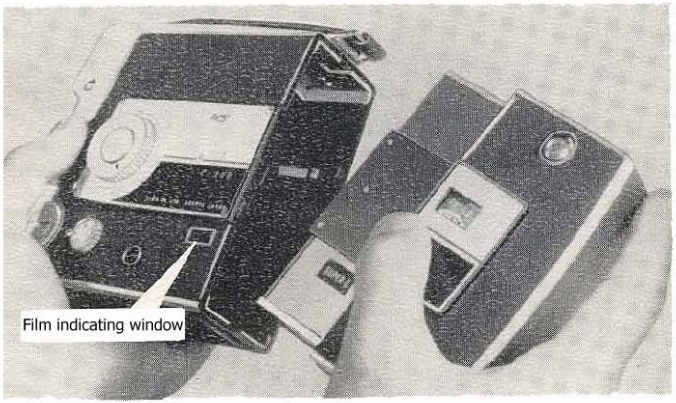




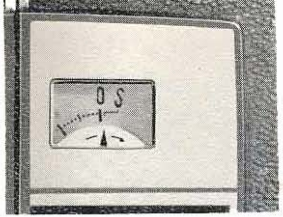
If the Single-8 magazine is removed from the camera before the entire length of film has been exposed, the portion of film remaining outside the magazine will be wasted. If the Single-8 cartridge is removed from the magazine, the film counter will return to the original position.

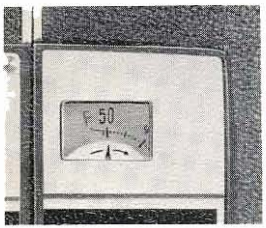
SUPER-8 MAGAZINE

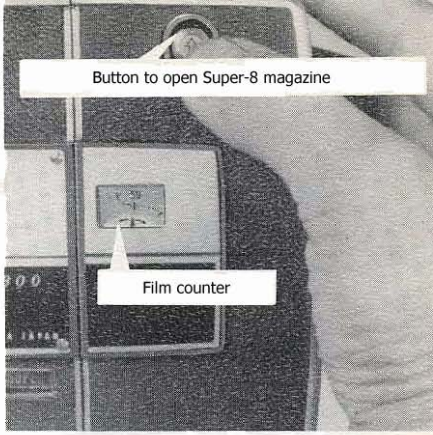
Super-8 magazine is seated in the camera in exactly the same manner as in case of Single-8 magazine. This is accomplished by correctly aligning the connecting portions. If the magazine has already been placed in the camera, "SUPER-8" appears in the film window located at the left bottom of the camera body.



The Super-8 film developed and prepared for projection is indentical to Single-8 film except that the thickness is different. Super-8 film cannot be used in the ordinary projector, but the ELMO FP-A Projector will take the three types of 8mm film and give superb projection effects.







The film counter is located on the left side of the magazine. The scale runs from "S" to "0" to "50" to "F", and progresses from the left to the right. (Refer to the photograph)

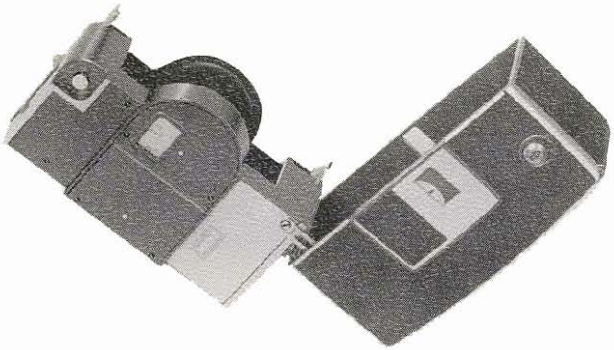
Begin filming after running the film from "S" to "0". When the "F" position is reached, the film automatically stops although the motor continues to run. This condition is readily apparent as the sound of the motor changes. Stop filming, open the magazine, and remove the cartridge. "EXPOSED" appears on the portion of the film protruding from the front of the cartridge. In addition, the appearance of cutaway portions on both sides of the film indicates that the film has been completely exposed. Do not open the cartridge. Send it directly to the film processing laboratory according to the instructions which come with the film.

If the push button near the top on the left side of the magazine is pushed upward in the direction of the arrow, the rear cover of the magazine will open to the rear on the hinge at the bottom. (Refer to the photograph)

The cartridge is inserted from the rear. If the cartridge is upside down at this time, it cannot be inserted into the magazine as there is a safety device located at the center of the magazine.

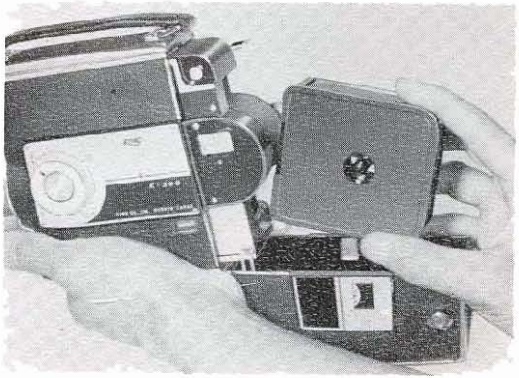
A portion of the film protrudes from the cartridge. Insert this portion so that it enters the Super-8 magazine (front) and close the cover. This completes loading. The ASA sensitivity adjustment is made automatically at the same time. The film type appears in the small window at the center of the right side of the magazine.

In succession when Super-8 film is to be used, open the rear cover with the Super-8 magazine already positioned in the camera, and insert the cartridge loaded with Super-8 film.

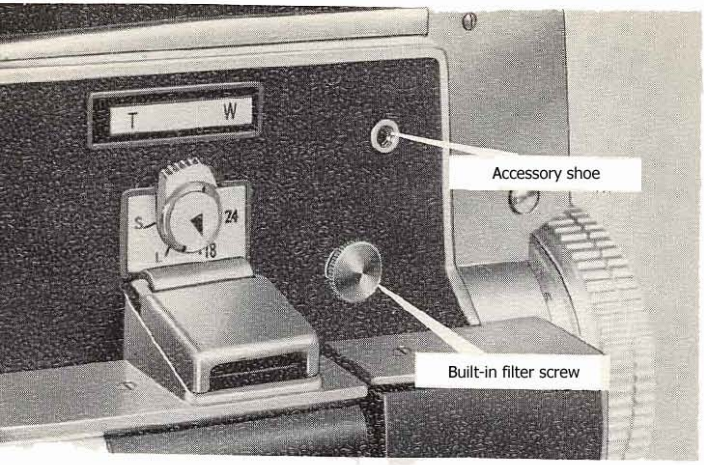


Right side of Super-8 Cartridge

Left side of Super-8 Cartridge



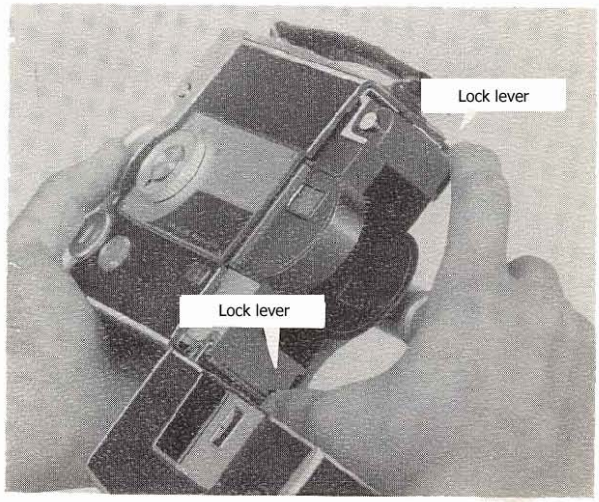
Due to the Super-8 film cartridge construction, rewinding and reverse shooting are not possible.



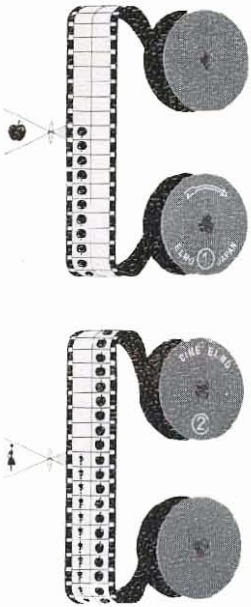
Super-8 film (Tungsten Type) may also be used in sunlight with a suitable filter. The C-300 self-contained #85 filter may be used to obtain proper effects under sunlight conditions. Filter status may be determined with the viewfinder. When the Super-8 magazine is positioned in the camera, the filter is automatically positioned inside the camera at the same time. When used with indoor lighting, it is necessary to shift the filter so that it does not affect light entering the camera. This is done by the filter screw. Refer to the photograph showing the filter screw located in the proper position for retracting the filter. Normally, this screw is positioned in the top hole. (accessory shoe)

When the cartridge is removed the film counter will return to its original position. If the cartridge is removed before the film is completely exposed, be sure to remember the counter indication. At this time, only the portion of the film in front of the magazine will be exposed and wasted.

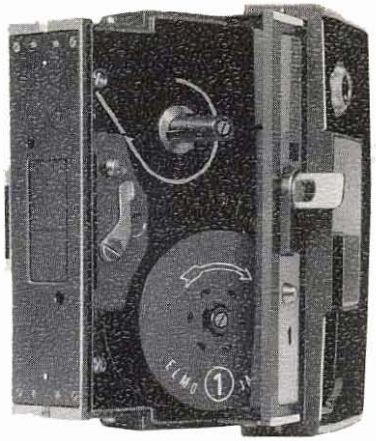
To separate the Super-8 magazine from the camera, open the magazine cover to the rear as when inserting or removing the cartridge. There are spring releases at top and bottom of the cartridge compartment. Holding these with thumb and forefinger, depress and extract the magazine by pulling. Refer to the photograph.



DOUBLE-8 MAGAZINE



A magazine shutter is located on the Double-8 magazine. If this magazine is removed from the camera, the shutter always closes automatically. For this reason, not a single frame of film is wasted when the magazine is removed from the camera body before completion of exposure. The indicated film counter value does not change unless the film in the magazine is replaced.

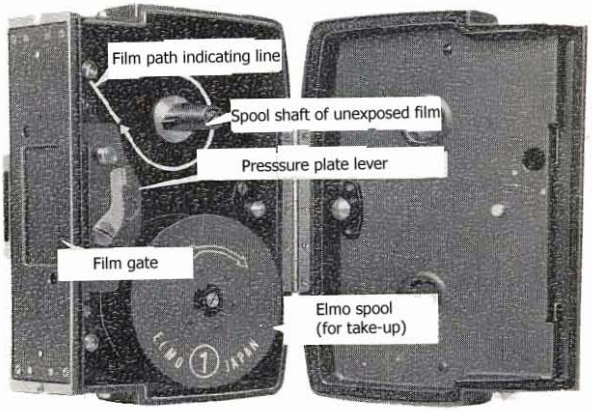


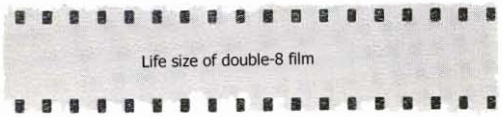
Magazine safety shutter →

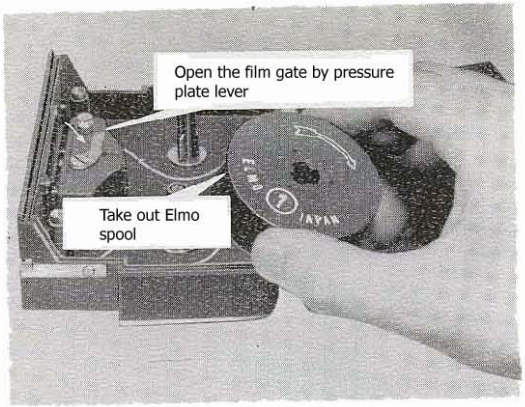
Double-8 film is 16mm wide, and the length is 25 feet (7.5 meters).

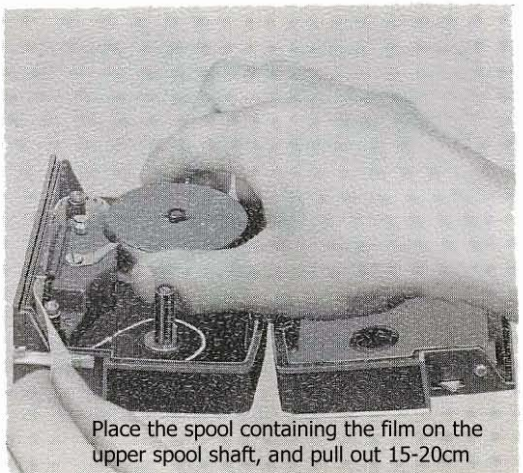
However, the actual length exceeds 30 feet (approx. 9 meters).

As illustrated, exposure is made twice, once for each half of the film. The Double-8 magazine may be opened by lifting the cover lock and turning counter-clockwise. Remove the Elmo spool marked "ELMO ① JAPAN" at the position of lower spool shaft. Refer to the illustration. Next, use the knob to open the pressure plate, increasing the film gate clearance (the degree of opening is quite small).

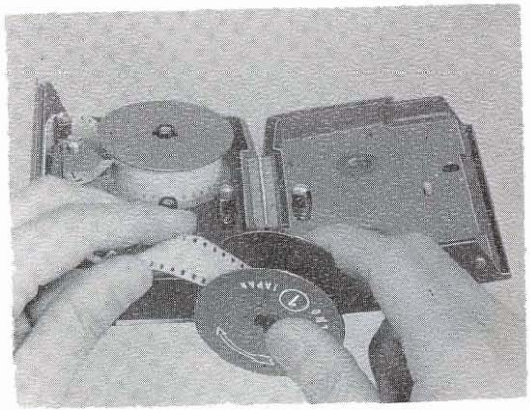




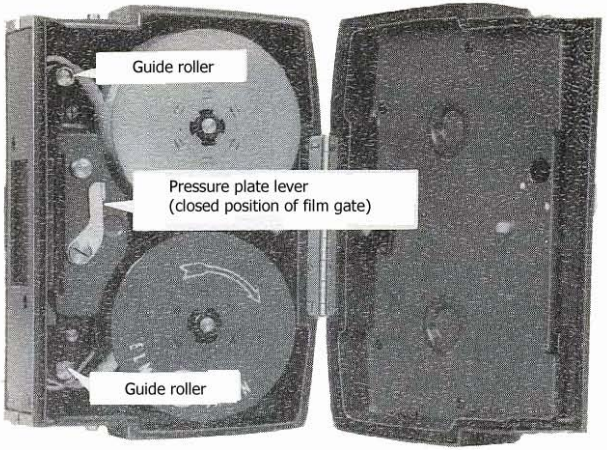




Place the unexposed film (loaded on a spool) over the spool shaft in the magazine, after positioning the 4 notched side (+) of the spool hole up. Making sure that the wound film does not become loose, pull out 15 to 20 centimeters of the film leader. Carefully insert the leader into the slot of the Elmo spool shaft, and wind at least three turrs of film on the spool. Winding direction is shown by arrow when the ① side of the Elmo spool faces up. Refer to the illustration. Pass the section of film between the two spools through the film gate, and position the Elmo spool over the shaft where it was originally located. The film passes along the outside of the upper and lower guide rollers. Refer to the illustration. Use the knob to return the pressure plate to



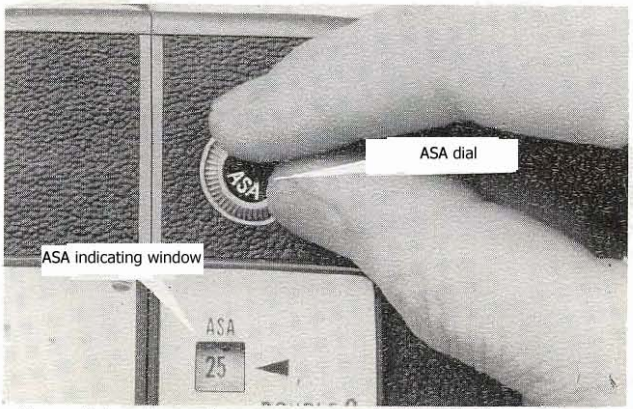
its original position; close and lock the magazine cover. Construction is such that the cover cannot be closed unless the pressure plate is properly positioned.



It is only necessary to align the magazine and camera body, and to push the magazine into place when inserting the magazine with film loaded into the camera. Refer to the illustration.

When loading the camera with a Double-8 magazine, first set the black button (SHUTTER OPEN) on mark △ by pushing upward until it stops. If the button is released at this time, it will return to its original position. If this step is neglected, the magazine shutter will not open when the camera shutter button is depressed, and at the same time the drive motor will not operate. In addition, the magazine shutter will not open if the black buttor is moved before placing the magazine in the camera. These features eliminate the possible blunder.

Turn the ASA dial, above the ASA window ir the center of the magazine, and set the value appearing in the window to the ASA number (sensitivity) of the loaded film. The film ASA number may be determined by checking the film container or instructions. The ASA number for black and white (monochrome) film made in Japan is 40, and that of color film is 25. If this setting is neglected, action of the "TTL" device will not be proper, resulting in exposure errors. Be sure to set the ASA number correctly. There is a small orange dot on the ASA dial between 25 and 40. When Kodachrome II Type A (nighttime, tungsten, ASA 40) is used outdoors in natural sunlight, position the #85 filter in front of the lens. The ASA 40 sensitivity is decreased by amber filter use. Before shooting, move the ASA dial from 40 to the small orange dot.



Film sensitivity rating are the same in Japan (JIS), and the United States of America (ASA). However, Germany and other European countries use the German (DIN) ratings. A table which shows these rating relationships appears on the magazine.

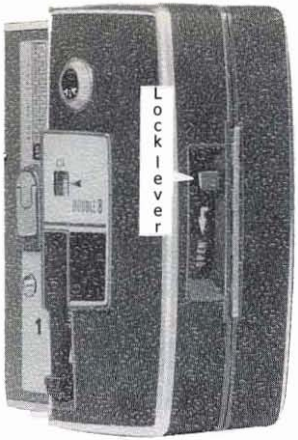
The film counter is on the right side of the Double-8 magazine. Two groups of numerals appear in the film counter window. The upper group is used when the 2nd half is exposed. The row designated by "1", in the lower group, indicates values in shooting for the first half of the film. Read this row. Advance the film from "S" (start of the film) to "0" before actual shooting. After half of the film has been exposed, the motor will stop automatically. Remove the magazine from the camera by observing the OPEN arrow direction on the side of the magazine and forcing the lever downward while pulling. Reverse the magazine and replace in the camera.

As the black button (SHUTTER OPEN) now faces the view finder barrel, push it down. The film counter is reversed and is at the lower left, so the "2" row of numbers must be read now. The first indicated number will be "25", and filming may start immediately from this point. The film counter runs from "25" to "50" to "F" during this operation.

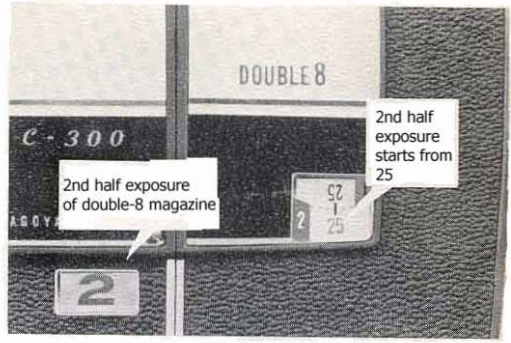
The sides of the Double-8 magazine are designated by "1" and "2". Refer to the illustration. When inserting this magazine in the camera, "1" and "2" will appear in the film window at the lower left of the camera body. Refer to the illustration.

On the ASA dial, the above-mentioned ASA number can be seen. Ⓐ is a small orange dot.

"TTL" fully automatic aperture control can be achieved to the films ranging from ASA 10 to ASA 400

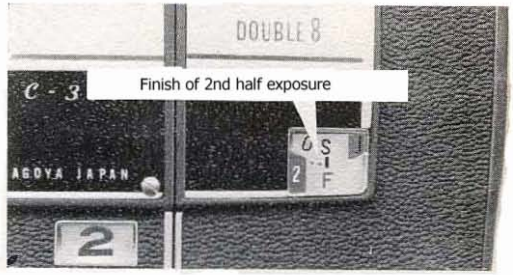


The motor will also stop automatically when the second half of the film has been exposed. Remove the magazine from the camera (at this time the OPEN arrow on the magazine side will be facing up). Open the magazine cover and remove the spool containing the film. Carefully place it in the original container and forward to a processing laboratory in accordance with the instructions for that particular film. The Elmo spool always remains in the camera after the film has been completely exposed.



When the Double-8 magazine is used, it is no longer necessary to remove the film after the first side has been exposed. Since film with a nominal length of 25 feet is actualy much longer to allow approximately two feet for loading, plus an additional portion to protect unexposed film, there is a considerable length of film which is wasted. With the ELMO C-300, most of this additional film may be used. With the Double-8 magazine, exposure may be made from the "0" point to the "29" foot mark where the drive stops cutomatically, and the total length for both sides becomes 58 feet. The first two feet (four feet when both sides are considered) are exposed during loading, giving a total effective length of 54 feet.

However, remember that, with Kodak film, both ends are trimmed during cevelopment and the finished length will be 50 feet.



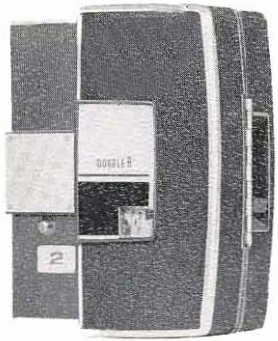
Since the ELMO ZOOM C-300 accomodates three types of film, a window for showing magazine type is in the lower left rear of the body. A glance at this window will tell whether Super-8 or Single-8 film or 1-or -2 is loaded. The first half of film is indicated by "1" and the second half by "2".

The film counter will return automatically to its original condition when the pressure plate is opened, in order to prepare for new film loading.

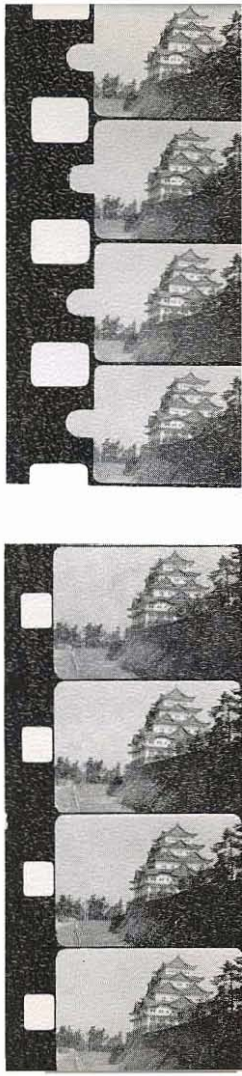
With conventional 8mm cameras, it is necessary to open the film compartment cover and to switch spool positions after half of the film has been exposed, necessitating loading operation repetition. At this time, a portion of the film becomes exposed, resulting in waste. As film in the Double-8 magazine is also threaded in the camera in broad daylight, the leader is exposed and wasted. This is unavoidable. However, the opposite end is protected since it is not used for threading. Double-8 film which has an effective length of only 7.5 meters when used in conventional cameras has an actual length of more than 9 meters.

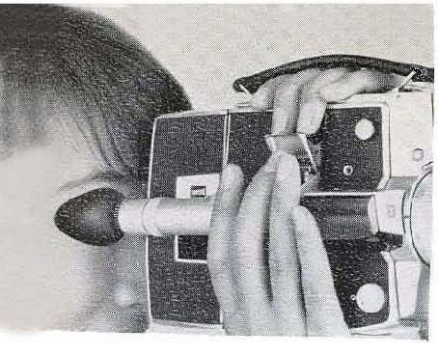
There are times when it is desirable to remove the Double-8 magazine from the camera before the #1 side film has been completely exposed, for the purpose of using a different magazine. When the same magazine is again placed in the camera, it is easy to forget on which side the shooting was stopped. Then, if the magazine is positioned accidentally in the wrong direction by mistaking #1 side exposure for #2 side one, the camera will not operate when the shutter button is depressed trying to expose the film of 2nd half, another special safety feature of the C-300.

The same safety feature locks camera operation when filming is stopped on the #2 side and the magazine erroneously reinserted with the #1 side in position for filming.



In addition to that of film thickness, there are two major differences between Single-8 and Double-8 film. The effective frame area of the Single-8 is 1½ times that of the Double-8, and the considerably smaller drive perforations are positioned differently relative to the frame area. Refer to the photograph for comparison (Double-8 is shown on top and Single-8 on the bottom). The ordinary projector will not accomodate both types, but the ELMO FP-A Projector can handle the three types, Double-8, Single-8, and Super-8.





ACTUAL SHOOTING

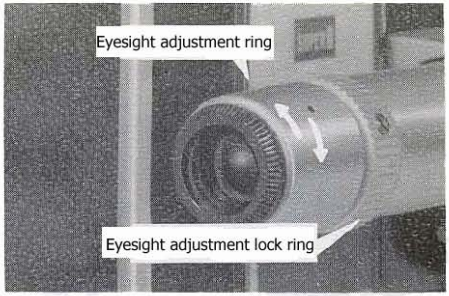
* For outdoor shooting or taking the C-300 on vacation trips, use the portable carrying case.
* For convenience, replace the carrying strap with the handy shoulder strap to carry while shooting.
* Support the camera with the right thumb and operate the shutter button with the middle or index finger when shooting. Place the left hand on the upper left of the camera, with the thumb positioned toward the operator. The "Autozoom" T and W buttons are operated with the index and middle fingers. Refer to the photograph.
* Turn the eyesight adjustment ring on the eyepiece to right or left for individual preference. After this adjustment, lock the adjustment ring with the lock ring. There is a high-quality rubber "eye" pad attached to the eyepiece. Refer to the photograph.
* When shooting, hold camera movement to the minimum by pressing the rubber pad against the eye and holding the right elbow firmly against the body. Refer to the above photograph.
* It is advisable to use a tripod or to brace the camera against a wall. Always hold the camera steady. When taking telephoto shots or zooming manually, be sure to use a tripod.

* The image in the viewfinder determines framing. Turn the manual zoom dial in the direction which produces the desired size.
* The square reticle [ ] in the viewfinder is used to show Double-8 film frame size. When Super-8 or Single-8 film is used, the reticle has no bearing on the frame size, which is represented by the entire image.

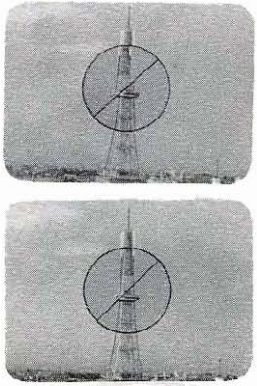
Rotate the lens barrel to focus. If the manual zoom dial is set to the 36mm the objective in the viewfinder will be maximum size. Shift the camera so that this image falls in the split image area to determine the focal status easily. Refer to the photograph. Return to the previously determined frame size and begin shooting.

* Before operating the shutter button, check the stop value and needle which appear on the right side of the viewfinder. If the needle is outside of the index, at either end, proper exposure will not be possible. When the light level is extremely high (snow scenes, beaches, etc.), the needle indication will be off-scale on the "16" end of the index. On the other hand, an extremely low light level will cause the needle indication to be off-scale on the "1.8" end.

When the light level is extremely high, fit the ND filter in front of the lens. An extremely low light level requires the use of illumination. The ND filter and close-up lens are available as accessories.



How to focus with the split image system



Upper picture shows "out-of-focus".
Lower picture shows "in- focus".

Determine the focus by turning the ring while looking at the finder

DEPTH OF FIELD (in meter)

Focal distance			9mm		12mm		20mm		36mm	
Distance (Meter) \ F No.			1.8	11	1.8	11	1.8	11	1.8	11
Subject-to-camera distance	∞	Near	2.27	0.39	4.02	0.68	11.2	1.86	36.	5.96
	5	Near	1.57	0.36	2.24	0.60	3.47	1.37	4.41	2.76
		Far	∞	∞	∞	∞	9.00	∞	5.78	30.2
	1.2	Near	0.79	0.30	0.93	0.44	1.09	0.75	1.17	1.02
		Far	2.51	∞	1.69	∞	1.34	3.24	1.24	1.47

* When the camera lens is focused on an object there is one position where the image is sharpest. Centering on its point, the acceptable sharpness zone extends as far in front of the object as behind it. This zone is called "depth of field".

ACCESSORIES

Filter Types

The ELMO ZOOM C-300 has a self-contained ♯85 filter which is automatically positioned when Super-8 film (Type A) is loaded. There are, however, other types of filters which may be fitted in front of the lens. Among these, the most important are :

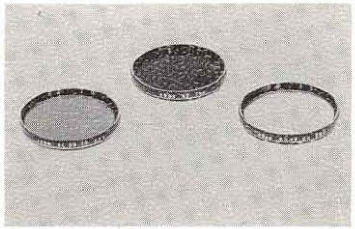
UV Filter (SL39, colorless) (eliminates ultraviolet rays)

Normally used for lens protection

ND×4 (medium gray)

Used when the light level of the object is extremely high

Either of the above two types may be used for both color, and black and white film.



♯85 (external)

When Double-8 or Single-8 film is used, the selfcontcined ♯85 filter remains retracted. In order to use Double-8 Film Type A (indoor type, artificial light) for ou-door scenes under natural daylight conditions, it is necessary to use an external ♯85 filter. This filter is fitted in front of the lens and gives optimal color effects.

Close-up Lens

By fitting the close-up lens in front of the camera and setting the zoom dial to 36mm., the closest focal length is obtained, and objects 54cm. from the film surface will be in sharp focus. The position which corresponds to the film surface is indicated by "Φ" on the left side of the camera in the center. The photographed area will measure 4.7×6.3cm.

By using the close-up lens, small details (such as the figures on the face of a wrist watch) may be photographed. The close-up lens is also convenient for making titles, and zooming may be performed with the close-up lens in place. The minimum focal length, without close-up lens, is 1.2 meters from the film surface, and the size of the photographed area when using Single-8 or Super-8 film is :

With lens set to "W" (wide-angle) 9mm : 53×70cm.

With lens set to "T" (telephoto) 36mm : 13×17cm.

Lens hood

With Elmo Fader attached

Lens Hood

The lens hood eliminates side and back light, and may be used at any time. It is valuable for blocking random reflected light and helps to maintain proper exposure.

ELMO Fader

Fade-out is the gradual dimming of the projected image. The opposite effect is called fade-in. By combining the two, a condition is obtained which is known as overlapping, i.e., the old image dims out while the new floats in. This is accomplished by a fader. The ELMO fader consists of two polaroid plates. When fitted in front of the lens, this assembly gives the desired fade-out/fade-in.

For overlapping, the lens cap is placed in position over the lens after a fade-out shot has been completed and the fade-out portion of the film is rewound. This same portion of the film is run through the camera again, using the fade-in process. Since the ELMO C-300 includes the rewind feature, overlapping is easy. When Super-8 film is used, cartridge construction precludes rewinding and overlapping is not possible. For further details, refer to the fader instruction booklet.

Remote Connector

The remote connector controls the camera from as far away as four meters, and the person operating the camera may also enter the picture. The remote connector also functions as a selftimer. This feature is also very useful in shooting timid birds and similar subjects. Refer to the individual instruction for usage.

Carrying Case

The convenient carrying case is for outdoor use or on vacation trips. It may also be used as a container for accessories, spare magazines, and film.

Soft Case

Hard Case

8mm Projector "ELMO FP-A"

The ultramodern, high-quality ELMO FP-A projector is the result of long experience and conscientious design. Its superb optical performance has been made possible through the sharp zoom lens and low-voltage lamp whose extra brilliance gives wonderfully clear projection. In the ELMO C-300, the same high performance graces the use of all three types of 8mm. film. When ELMO Tape Sound (ETS) is used with a tape recorder, the result is enjoyable sound movies.

ELMO Tape Sound (ETS)

A synchronizing device for use with a tape recorder is self-contained in the ELMO FP-A Projector. If ETS is connected between the tape recorder (optional models available) and the ELMO FP-A, film and tape transport are synchronized through automatic adjustment, always maintaining proper synchronization which results in maximum sound movie enjoyment.

ELMO

ELMO CO., LTD.